Masthead Logo

Virginia Commonwealth University
VCU Scholars Compass

Biology and Medicine Through Mathematics Conference

2019

May 15th, 11:30 AM

Modeling Malaria Dynamics with the Inclusion of Long and Short Incubation Periods

Ana L. Vivas-Barber
Norfolk State University, alvivasbarber@nsu.edu

Anne M. Fernando
Norfolk State University, amfernando@nsu.edu

Sunmi Lee
Kyung Hee University, South Korea, sunmilee@khu.ac.kr

Title: Modeling Malaria Dynamics with the Inclusion of Long and Short Incubation Periods

Abstract: In this research, the study of *p.vivax* Malaria dynamics is linked in to the inclusion of domestic animal populations along with human populations. Domestic animals seem to attract mosquitoes with mitigating effect of decreasing the mosquitoes bite rate in humans. A compartmental system modeled with ordinary differential equation is used to simulate the transmission of malaria, including short and long latent periods for the human population with seasonality of the mosquito population. The seasonal reproduction number was evaluated, stability results for the disease free equilibrium will be demonstrated and numerical simulations with varied malaria model parameters will be included.